

WHAT IS CLAIMED IS:

1. A scan diagnosis system for testing and diagnosing a device-under-test including:

a semiconductor tester adapted for coupling to the device-under-test and operative to generate pattern signals in the ATE domain to test the device-under-test and produce test output data in the ATE domain;

an ATPG diagnosis tool operative to generate ATPG pattern data and ATPG results data in the ATPG domain; and

a translator to effect automatic correlation of data between the ATPG domain and the ATE domain to allow data communication between the tester and the tool.

2. A scan diagnosis system according to claim 1 wherein the translator includes:

a pattern translator to convert ATPG pattern data into ATE pattern data;

a result translator to convert ATE output data into ATPG tool input data; and

a mapping generator for correlating the pattern data and the results data between the ATPG and the ATE domains.

3. A scan diagnosis system according to claim 1 and further including:  
a graphical user interface generator for receiving failure scan chain data identifying failed scan chains from the test and diagnosis engine and generating graphical representations of the failed scan chains; and

a display device coupled to receive the graphical representations from the graphical user interface, the display device operative to display the graphical representations of the failed scan chains.

4. A scan diagnosis system including:  
a test and diagnosis engine including a semiconductor tester and a scan  
diagnosis tool;  
a graphical user interface generator for receiving failure scan chain data  
5 identifying failed scan chains from the test and diagnosis engine and generating  
graphical representations of the failed scan chains; and  
a display device coupled to receive the graphical representations from  
the graphical user interface, the display device operative to display the graphical  
representations of the failed scan chains.

10 5. A scan diagnosis system according to claim 4 wherein the  
semiconductor tester is operative to generate pattern signals in the ATE domain to test  
a device-under-test and produce test output data in the ATE domain, and the diagnosis  
tool is operative to generate ATPG pattern data and ATPG results data in the ATPG  
5 domain, the scan diagnosis system further including:  
a translator to effect automatic correlation of data between the ATPG  
domain and the ATE domain to allow data communication between the tester and the  
tool.

6. A scan diagnosis system according to claim 5 wherein the translator  
includes:  
a pattern translator to convert ATPG pattern data into ATE pattern  
data;  
5 a result translator to convert ATE output data into ATPG tool input  
data; and  
a mapping generator for correlating the pattern data and the results data  
between the ATPG and the ATE domains.

7. A scan diagnosis system including:  
semiconductor tester means for generating pattern signals in an ATE domain to test a device-under-test and producing test output data in the ATE domain;  
diagnosis tool means for generating ATPG pattern data and ATPG results data in an ATPG domain; and  
means for automatically correlating data between the ATPG domain and the ATE domain to allow data communication between the tester means and the tool means.

8. A scan diagnosis system according to claim 7 wherein the test output data includes failed scan chain data, the scan diagnosis system further including:  
means for graphically displaying the failed scan chain data.

9. A computer-readable medium having stored thereon sequences of instructions which, when executed, cause one or more electronic systems to:  
test a device-under-test with test pattern data in a scan format;  
capture scan failure data associated with failed scan chains from the device-under-test;  
display a portion of the scan chains including the captured failure data;  
and  
diagnose the scan failure data with a diagnosis tool.

10. A method comprising:  
testing a device-under-test with test pattern data in a scan format;  
capturing scan failure data associated with failed scan chains from the device-under-test;  
displaying a portion of the scan chains including the captured failure data; and  
diagnosing the scan failure data with a diagnosis tool to produce diagnosis results data.

11. A method according to claim 10 wherein the step of testing includes the step:  
directly communicating with the diagnosis tool.

12. A method according to claim 10 wherein the step of testing includes the step:  
generating ATPG pattern data in the ATPG domain with the diagnosis tool; and  
5 automatically translating the ATPG pattern data into ATE test pattern data.

13. A method according to claim 10 wherein the step of capturing includes the step:  
accumulating multiple sets of scan failure data.

14. A method according to claim 10 wherein the step of displaying includes:  
displaying textual/tabular scan fail data.

15. A method according to claim 10 wherein the step of displaying includes:  
displaying graphical scan fail data.

16. A method according to claim 10 and further including the step:  
displaying the diagnosis results data.

17. A method according to claim 16 wherein the step of displaying includes:  
displaying textual/tabular diagnosis results data.

18. A method according to claim 16 wherein the step of displaying includes:  
displaying graphical diagnosis results data.

19. A method according to claim 13 wherein the step of diagnosing includes the step:  
automatically invoking the diagnosis tool on selected scan failure data sets.

20. A method according to claim 13 wherein the step of diagnosing includes the step:

generating ATPG pattern data in the ATPG domain with the diagnosis tool; and

5 automatically translating the ATE output test data into ATPG data; and generating ATPG input diagnosis tool data.

21. A method according to claim 13 wherein the step of diagnosing includes the step:

accumulating multiple sets of diagnosis results data.

22. A computer-readable medium having stored thereon sequences of instructions which, when executed, cause one or more electronic systems to:

generate pattern signals in the ATE domain with a semiconductor tester to test a device-under-test and produce test output data in the ATE domain;

5 generate ATPG pattern data and ATPG results data in the ATPG domain with an ATPG diagnosis tool; and

automatically correlate data between the ATPG domain and the ATE domain with a translator to allow data communication between the tester and the tool.

23. A method comprising:

generating pattern signals in the ATE domain with a semiconductor tester to test a device-under-test and produce test output data in the ATE domain;

5 generating ATPG pattern data and ATPG results data in the ATPG domain with an ATPG diagnosis tool; and

automatically correlating data between the ATPG domain and the ATE domain with a translator to allow data communication between the tester and the tool.

10